

BOOK REVIEW - LIVRO*

ZWILLING, Bruce S. & EISENSTEIN, Toby K., ed. - **Macrophage-pathogen interactions.**
New York, Marcel Dekker, 1994. 634p. illust. (Immunology Series, 60)
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As N. Rose pointed out in his Series Introduction, "the full extent of the macrophage as an effector cell has more recently been perceived" and we can say that "the decade of the macrophage has dawned". This volume of Immunology Series deals with the interaction of macrophage and pathogens and is divided into five parts.

Part I contains the Introduction and fourteen chapters and covers the macrophage biology in a very clear and didactic way. The Introduction provides information on proliferation and differentiation of macrophages from bone marrow stem cells. Four chapters deal with macrophage activation. These sections include a historical review, the molecular biology of macrophage activation, the interactions with lipopolysaccharides, and transmembrane and intracellular signaling events that follow stimulation of macrophages. Chapter 5 gives a general overview of phagocyte receptors that either have been associated with microbial recognition or have the potential to participate in this process. Chapter 6 reviews current understanding of microbial antigens processing and presentation including the intracellular pathogen *Listeria monocytogenes* as an example of these interactions. Inflammation is a vital consequence of tissue injuries caused by various inciting stimuli. In Chapter 7, contemporary concepts of the mechanisms of leukocyte infiltration, and macrophages as producers of chemotactic proinflammatory cytokines are discussed. In the field of inflammation, Chapter 8 also reviews the interaction of macrophages with acute phase protein. The next three sections focus on some of the antimicrobial mechanisms of macrophages, reactive nitrogen intermediates, and antimicrobial peptides. Finally, the regulating aspects of macrophage functions are discussed in the last three chapters in Part I including: 1) the examine of conditions that generate suppressor macrophages, with particular emphasis on suppression associated to microbial infections; 2) the macrophage-NK cell interactions in resistance to *Mycobacteria*, and 3) the role of macrophage resistance genes in the ability of a host to resist microbial growth.

Part II is divided in ten chapters and provides recent findings relating to macrophage-bacteria interactions. Intracellular microorganisms, as a class of infectious agents, are among the most difficult pathogens for mammalian hosts to eradicate. The sections included in Part II focus on the state of current knowledge regarding intracellular bacteria and macrophage interactions, including *M. tuberculosis*, *M. avium*, *M. leprae*, *Salmonella typhimurium*, *Listeria*, *Legionella*, *Francisella tularensis*, *Bruceella*, *Chlamydiae*, and *Rickettsiae*.

Part III reviews macrophage-parasite interactions in five clear and didactic sections. Chapter 25 focuses on recent advances in the biology of *P. carinii* (PC) with emphasis on its interaction

with host defense cells, and the immunopathogenesis of PC pneumonia specially in AIDS. Chapter 26 reviews the interaction between *Leishmania major* and macrophages in a experimental murine system. In the mouse model, the macrophages may play a major role in schistosomiasis mansoni, both in resistance against *S. mansoni* and in the isolation of helminth eggs by formation of the inflammatory granuloma. This dual role of host macrophages against schistosome worms is discussed in a very interesting manner in chapter 27. In the next section, the mechanisms of macrophage activation and killing in *T. gondii* infections are reviewed, and the different cytokines that modulate macrophage function against *T. gondii* are discussed. Finally, the last chapter in Part III deals with the multiplicity of roles of macrophages in mammals infected with *T. cruzi*, with emphasis on cytokine stimulation of macrophages and the possible role of suppressor macrophages in the profound immunosuppression of both nonspecific and parasite-specific immune responses.

Part IV reviews macrophage-fungal interactions. In Chapter 30, the authors pointed out that monocyte/macrophage, in comparison to the neutrophil, would appear to have a limited role in protection against *C. albicans*. Chapter 31 focuses on clinical manifestation of histoplasmosis, mechanisms of pathogenesis, and the immunological response of the host to *Histoplasma capsulatum*. The critical role macrophages are presumed to play in host defenses against *C. neoformans* and *Aspergillus* are discussed in the next two chapters. Finally, the last section reviews macrophage-*Blastomyces dermatitidis* interactions.

The last part in this book deals with macrophage-viral interaction. Part V includes three chapters with emphasis on viral infections with special importance nowadays. In Chapter 35, the interaction of HIV-1 with various cells of the monocyte/macrophage lineage and the role of these cell types in HIV-1 disease progression are analysed. The next section reviews the current understanding of the role of the macrophage in the pathogenesis of lentiviral disease. Finally, the last chapter focuses on the critical role of macrophages on natural resistance to herpes simplex virus infection, and particularly on the role of cytokines, and the early inflammatory response to HSV infection.

This excellent book introduces basic and recent key concepts regarding macrophage-biology and macrophage-pathogen interactions in a attractive and clear manner of presentation. Therefore it is recommended for postgraduates and researchers in the area of Immunology and Infectious Diseases.

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